Increment 23&24 CRR- TOXICOLOGY

Medical Operations

Presenter	Date
Kenny Ballard & William Misek	2/4/10

Toxicology Critical Readiness Review

Kenny Ballard

William Misek

Increment 23 & 24

February 4, 2010

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Hardware Status

CSA-CP	Nominal Use
CSA-O2	Nominal Use
Portable Gas Delivery System	Nominal Use
CDMK	Nominal Use
FMK	Nominal Use
GSC	Nominal Use
“mini” GSC	Sampling between 19A and ULF-5
GC/DMS	Extended SDTO; Nominal Use

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CSA-CP

- 4 new CSA-CPs arriving on ULF4 (not yet on official manifest)

- Steps taken to mitigate contamination of CP sensors during transit to ISS
  1. Lithium battery packs removed from CSA-CPs and replaced with Alkalines that will preserve sensor calibration for only 25 days but will not off-gas
  2. CSA-CPs sealed in Mylar bags to prevent contamination from Lithium battery packs surrounding the monitors within the Resupply Kit
  3. CSA-CP Activation and Checkout scheduled early in the Docked Operations timeline so that monitors may be given a chance to “air out” and lessen their contamination before the old units are brought back to Earth

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CSA-O2

- O2 sensor calibration life: 1 month
- O2 sensor shelf life: ~1 year

- Sensor is required to be recalibrated monthly using the IGDS

- Once on-orbit CSA-O2s receive an additional label to tell the crew: 1) the nominal O_2 levels expected in the cabin, 2) the allowed O_2 levels behind a closeout panel.
  - This label will have to re-applied on every CSA-O2 once they arrive on ISS.

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CSA-CP and CSA-O2 Maintenance Schedule

- **CSA-CP**:
  - Prime unit Battery Changeout – every 2 weeks
    - Max battery life in Prime unit = 18 days
  - Zero Calibration of all units – every 30 days (round to 4 weeks)
  - Backup unit Battery Changeouts – every 8 weeks
    - Max battery life in Backup unit = 61 days
- **CSA-O2**:
  - O2 Sensor Calibration – NLT every 30 days

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CDM

- 5 CDMs currently on orbit (2 CDMKs plus one extra)
- CDMK S/N 1009, containing CDMs 1002 and 1009, is currently lost. CDMK S/N 1010 is on-orbit and available for crew use.

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FMK

- Monthly Sample Schedule (2 samples/session)
  - Sample 1: Lab
  - Sample 2: SM
- Monthly GSC and FMK samples should be performed simultaneously and in the same location as Russian sampling

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GSC

- 2-3 contingency GSCs available at all times
- Concurrent with GC\DMS run (between 1 and 3 hours after start of run)
- First ingress samples in MPLM (19A), MRM1 (ULF-4)
- Monthly Sample Schedule (3 samples/session)
  - Sample 1: Lab
  - Sample 2: SM
  - Sample 3: alternating between JEM and Columbus

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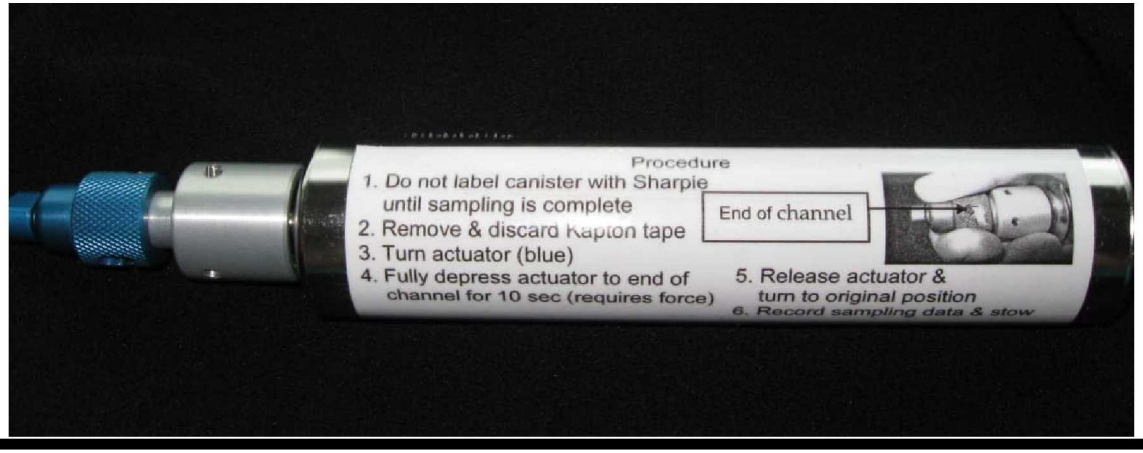
"mini" GSC

- Replacing the current GSC, still in certification
- Reduced size, so more can be stored and manifested after shuttle retirement
- Smaller Sample volume: From 350mL to 183mL
- Op Nom is GSC
- Manifested on 19A, ULF-4, and 38P



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"mini" GSC (cont'd)

- Sampling Plan:
  - 19A (3) will be taken paired with an old GSC once per month in the nominal locations.
  - ULF-4 (6) will be taken in triplicate with old GSC once per month in nominal locations
  - 38P (9) will start the nominal sampling of "mini" GSC only

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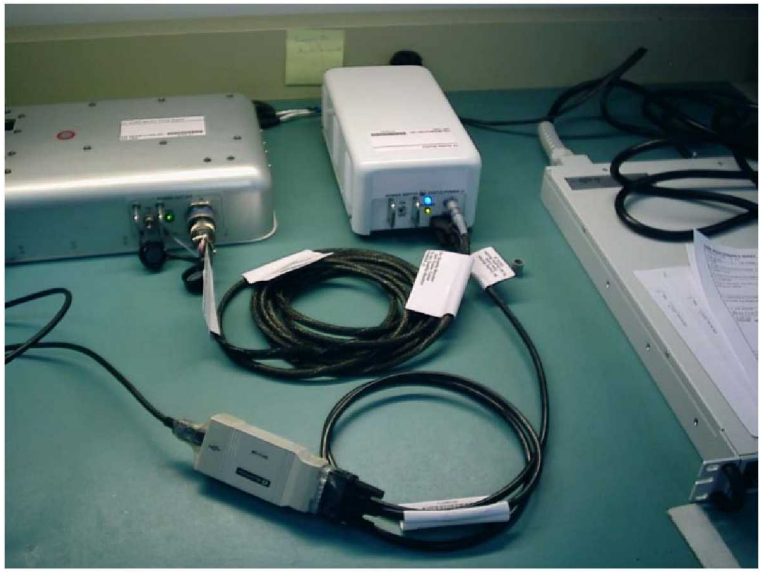
Gas Chromatography/Differential Mobility Spectrometer (GC/DMS)

- Air Quality Monitor
- Deployed at LAB1S1 (on the TeSS) using UOP3 and SSC 12
- Two runs/week
- Start and Stop runs are Blue boxed due to acoustic constraint (5hrs)
- Extended the SDTO for another 6 months



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GC/DMS (cont'd)

- Resupply scheduled for ULF-4
  - Sending one new unit
  - Will consist of a new column and new sieve pack which should fix the Negative Channel issues
  - Software update is still in work
  - Will transition to T61p SSC